Amendments to the Claims:

Please amend claims 1, 9 and 13-16 as follows. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) An apparatus for calculating satellite acquisition information for controlling a position determination entity (PDE) to determine a position of [[an]] a mobile station (MS) in a network assisted GPS system, said PDE comprising:

a satellite data collector for collecting satellite orbital information and pseudo range between a satellite and at least one of a mobile station (MS) and a base station (BS) of more than three consecutive times from a plurality of satellites;

an interface for receiving a request message from an MS and requesting a calculation of satellite acquisition information;

a satellite position calculator for receiving the request for the calculation of satellite acquisition information from the interface and calculating satellite position information using satellite orbital information from the satellite data collector;

a pseudo range calculator for calculating a pseudo range using the calculated satellite position information from the satellite position calculator;

a satellite velocity calculator for receiving the request for the calculation of satellite acquisition information from the interface and calculating velocity of satellites relative to the Earth-Centered, Earth-Fixed (ECEF) coordinate system using the satellite orbital information;

a pseudo velocity calculator for calculating pseudo velocities between the MS and each satellite observed by the MS at a position measurement time of the MS using ~~only~~ a velocity component directed to the MS from among a plurality of satellite velocity components; and

a satellite acquisition information calculator for calculating a code phase using

the pseudo range, and for calculating a Doppler shift using the pseudo velocity, and communicating the code phase and Doppler shift to the MS in response to the request message,

wherein the PDE transmits reference time data and a time-dependent variation to the MS in order for correcting time difference, and

wherein the PDE transmits a difference between the frequency variation generated at an estimated time and the time-dependent frequency variation to the MS when a frequency of the satellite is correctly fixed to a specific value, so that the MS calculates the final frequency using the difference between the frequency variation.

2. (Original) The apparatus as set forth in claim 1, wherein the pseudo range is estimated considering a propagation delay between each satellite observed by the MS and the MS.

3. (Original) The apparatus as set forth in claim 1, wherein the pseudo velocity is estimated considering a propagation delay between each satellite observed by the MS and the MS.

4. (Original) The apparatus as set forth in claim 1, wherein the satellite orbital information is comprised of satellite coordinates and a coordinate extraction time.

5. (Original) The apparatus as set forth in claim 1, wherein the satellite acquisition information calculator calculates a code phase between each satellite and the MS using the following equation:

$$SV\_CODE\_PH = floor((\rho / C) * 1000 - t * 1023)$$
$$t = floor((\rho / C) * 1000)$$

where SV_CODE_PH is a code phase between the satellite and the MS, ρ is a pseudo range, and C is the velocity of light.

6. (Original) The apparatus as set forth in claim 1, wherein the satellite acquisition information calculator calculates the Doppler shift containing both a frequency variation of the satellite signal at the time Ta at which the MS expects to search for the satellite signal and a differential value of the frequency variation.

7. (Original) The apparatus as set forth in claim 6, wherein the satellite acquisition information calculator calculates the frequency variation of the satellite signal received in the MS using the following equation:

$$DOPPLER0(=PVsv\_bts\,|\,Ta) = PVsv\_gpsrv\,|\,Tc + (RVsv\_bts\,|\,Ta - RVsv\_gpsrv\,|\,Tc)*1000*1575420000/C$$

where $DOPPLER0$ is the frequency variation of the satellite signal, $PVsv\_bts\,|\,Ta$ is a pseudo velocity between the satellite and the MS at the time Ta, $PVsv\_gpsrv\,|\,Tc$ is a pseudo velocity between the satellite and the apparatus at the time Tc, $(RVsv\_bts\,|\,Ta - RVsv\_gpsrv\,|\,Tc)$ is a difference between a real velocity of the satellite at the time Ta and a real velocity of the satellite at the time Tc.

8. (Original) The apparatus as set forth in claim 7, wherein the satellite acquisition information calculator calculates a differential value of the frequency variation of the satellite signal using the difference between the pseudo velocities of the times Ta0 and Ta1 by means of the following equation:

$$\Delta Doppler = (RVsv\_bts\,|\,Ta1 - RVsv\_bts\,|\,Ta0)*1000*1575420000/C$$
$$Doppler1 = floor(\Delta Doppler * 64)$$

where $RVsv\_bts\,|\,Ta0$ is a real range between the satellite and the BS at the time Ta, $RVsv\_bts\,|\,Ta1$ is a real range between the satellite and the BS at the time

Ta1, C is a velocity of light, and *Doppler*1 is a differential value of the frequency variation of the satellite signal.

9. (Currently Amended) A method for calculating satellite acquisition information for controlling a position determination entity (PDE) to determine a position of [[an]] a mobile station (MS) in a network assisted GPS system, the method comprising:

a) controlling a satellite data collector to collect ~~collecting~~ satellite orbital information and pseudo range between a satellite and at least one of a mobile station (MS) and a base station (BS) of more than three consecutive times from a plurality of satellites;

b) receiving a request message from the MS and controlling a satellite velocity calculator to calculate a ~~calculating~~ velocity of satellites relative to the Earth-Centered, Earth-Fixed (ECEF) coordinate system using the satellite orbital information from the satellite data collector;

c) controlling a pseudo velocity calculator to calculate ~~calculating~~ pseudo velocities between the MS and the each satellite observed by the MS at a position measurement time of the MS using ~~only~~ a velocity component directed to the MS from among a plurality of satellite velocity components; ~~and~~

d) controlling a satellite position calculator to calculate satellite position information using satellite orbital information from the satellite data collector;

e) controlling a pseudo range calculator to calculate a pseudo range using the calculated satellite position information from the satellite position calculator; and

~~d) calculating~~ f) controlling a satellite acquisition calculator to calculate a code phase using the pseudo range, and ~~for calculating~~ calculate a Doppler shift using the pseudo velocity, and communicate the code phase and Doppler shift to the MS in response to the request message,

wherein the PDE transmits reference time data and a time-dependent variation to the MS in order for correcting time difference, and

wherein the PDE transmits a difference between the frequency variation generated at an estimated time and the time-dependent frequency variation to the MS when a frequency of the satellite is correctly fixed to a specific value so that the MS calculates the final frequency using the difference between the frequency variation.

10. (Original) The method as set forth in claim 9, wherein the pseudo range is estimated considering a propagation delay between the each satellite observed by the MS and the MS.

11. (Original) The method as set forth in claim 9, wherein the pseudo velocity is estimated considering a propagation delay between the each satellite observed by the MS and the MS.

12. (Original) The method as set forth in claim 9, wherein the satellite orbital information is comprised of satellite coordinates and a coordinate extraction time.

13. (Currently Amended) The method as set forth in claim 9, wherein the step ~~(d)~~ (f) for calculating the satellite acquisition information comprises:

~~d1)~~ f1) calculating a code phase between the each satellite and the MS using the following equation:

$$SV\_CODE\_PH = floor((\rho / C) * 1000 - t * 1023)$$
$$t = floor((\rho / C) * 1000)$$

where SV_CODE_PH is a code phase between the satellite and the MS, ρ is a pseudo range, and C is the velocity of light.

14. (Currently Amended) The method as set forth in claim 9, wherein the step ~~(d)~~ (f) for calculating the satellite acquisition information further comprises:

~~d2)~~ f2) calculating the Doppler shift containing both a frequency variation of the satellite signal at the time Ta at which the MS expects to search for the satellite signal and a differential value of the frequency variation.

15. (Currently Amended) The method as set forth in claim 14, wherein the step ~~(d)~~ (f) for calculating the satellite acquisition information further comprises:

~~d3)~~ f3) calculating the frequency variation of the satellite signal received in the MS using the following equation:

$$DOPPLER0(= PVsv\_bts \mid Ta) = PVsv\_gpsrv \mid Tc + (RVsv\_bts \mid Ta - RVsv\_gpsrv \mid Tc) * 1000 * 1575420000 / C$$

where $DOPPLER0$ is the frequency variation of the satellite signal, $PVsv\_bts \mid Ta$ is a pseudo velocity between the satellite and the MS at the time Ta, $PVsv\_gpsrv \mid Tc$ is a pseudo velocity between the satellite and the apparatus at the time Tc, $(RVsv\_bts \mid Ta - RVsv\_gpsrv \mid Tc)$ is a difference between a real velocity of the satellite at the time Ta and a real velocity of the satellite at the time Tc.

16. (Currently Amended) The method as set forth in claim 15, wherein the step ~~(d)~~ (f) for calculating the satellite acquisition information further comprises:

~~d4)~~ f4) calculating a differential value of the frequency variation of the satellite signal using the difference between the pseudo velocities of the times Ta and Ta1 by means of the following equation:

$$\Delta Doppler = (RVsv\_bts \mid Ta1 - RVsv\_bts \mid Ta0) * 1000 * 1575420000 / C$$
$$Doppler1 = floor(\Delta Doppler * 64)$$

where $RVsv\_bts \mid Ta0$ is a real range between the satellite and the BS at the time Ta, $RVsv\_bts \mid Ta1$ is a real range between the satellite and the BS at the time

Ta1, C is the velocity of light, and *Doppler*1 is a differential value of the frequency variation of the satellite signal.